

California Regulation for the Mandatory Reporting of Greenhouse Gas Emissions

2013 Product Data Reporting: Complexity Weighted Barrels (CWB) for Petroleum Refineries

March 20, 2014
Presentation Slides Available Here:

http://www.arb.ca.gov/cc/reporting/ghg-rep/guidance/guidance-training.htm

Outline

- Background
- Metering requirements for CWB throughputs
- Calculating and reporting total CWB

Background: Complexity Weighted Barrel

Background

- Mandatory Reporting Regulation (MRR):
 http://www.arb.ca.gov/cc/reporting/ghg-rep/regulation/mrr-regulation.htm
- § 95113(I)(3) requires refineries to report CWB starting with 2013 data reported in 2014
- Beginning in 2014, Cap-and-Trade Regulation will use reported CWB along with CWB-based benchmarks to calculate allowance allocation to refineries
- CWB unit throughputs are covered product data
 - Total CWB is subject to material misstatement

Complexity Weighted Barrel

- Metric of GHG efficiency for petroleum refineries developed by Solomon Associates:
 - CWB factors represent GHG intensity for processes at average efficiency level for standard fuels
 - CWB factors expressed relative to atmospheric crude distillation

CWB Component Equations

Process CWB

$$CWB_{process} = \sum (CWB_{factor} \times Throughput)$$

Offsites CWB

$$CWB_{offsites} = (0.327 \times Total\ Refinery\ Input) + (0.0085 \times CWB_{process})$$

Noncrude Sensible Heat CWB

$$CWB_{noncrude} = (0.44 \times Noncrude\ Input)$$

Total CWB Equations

Total CWB for MRR verification:

$$CWB_{total} = CWB_{process} + CWB_{offsites}$$

Total CWB for Cap-and-Trade allocation:

$$CWB_{total} = CWB_{process} + CWB_{offsites} + CWB_{noncrude}$$

Metering Requirements for CWB Throughputs

Metering Requirements

- CWB unit throughputs are covered product data and evaluated for conformance
 - ±5% accuracy
- 2013 data: Operators may use Best Available Methods to report throughputs
 - Engineering methods, mass balance, strap-on meters
- 2014 data and beyond: Throughputs subject to metering requirements in §95103(k)(1)-(10)
 - Calibration frequency and methods

Complying with Metering Requirements

- Under certain circumstances, reporters may request ARB approval of:
 - Calibration postponements per §95103(k)(8)-(9)
 - Must assure accuracy during postponement period
 - Submit request by April 10, 2014 for reporting in 2015
 - Alternative measurement methods per §95103(m)
 - Must be approved prior to the year implemented
 - Applicable for future years, barring regulatory changes
- Reporters may exclude inaccurate covered product data per §95103(I)
 - Must describe and estimate magnitude of excluded data
 - Allowances will not be allocated for excluded data

CWB Reporting Spreadsheet

Reporting Spreadsheet Overview

Download:

http://www.ccdsupport.com/confluence/display/calhelp/Reporting+Form+Instructions

- Enter data:
 - 1. Info and Instructions
 - 2. CWB Worksheet: Input and Calculation
 - 3. CWB Data Table (No user input)
- Submit:

https://ssl.arb.ca.gov/Cal-eGGRT/login.do

Downloading the Spreadsheet

Download:

http://www.ccdsupport.com/confluence/display/calhelp/Reporting+Form+Instructions

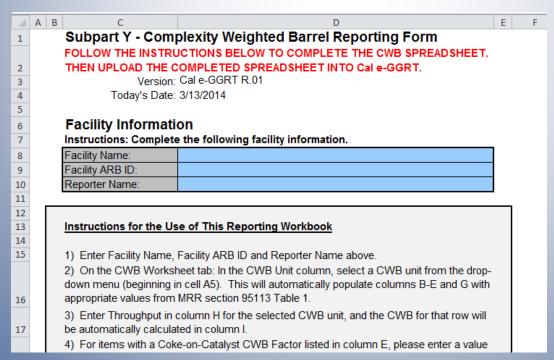
scroll down to middle of page

W - Petroleum and Natural Gas Systems (Subarticle 5)	Petroleum and Natural Gas Systems - Emissions Calculation Workbook.xls (contact ARB at ghgreport@arb.ca.gov for info)	n/a	n/a
2011 Product Data	2011 Product Data.xls	n/a	n/a
Y - Petroleum Refineries	Subpart Y Additional Production Data and Solomon Energy Intensity Index xls	carb_subpart_y_addProd_data.xsd	XML
Y - Petroleum Refineries	Complexity Weighted Barrel (CWB) Reporting Form.xlsx	n/a	XLS
MM - Suppliers of Transportation Fuels Calculation and Reporting Tool	Suppliers of Transportation Fuels Calculation and Reporting Tool.xls	carb_subpart_mm.xsd	XML

- Save file to computer before entering data
 - Filename: Refinery_name_2013_CWB.xlsx

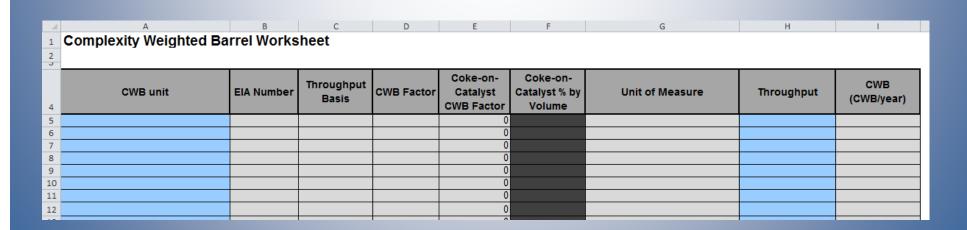
Info and Instructions Tab

- Enter Facility Name, Facility ARB ID and Reporter Name in blue cells
- Follow the instructions

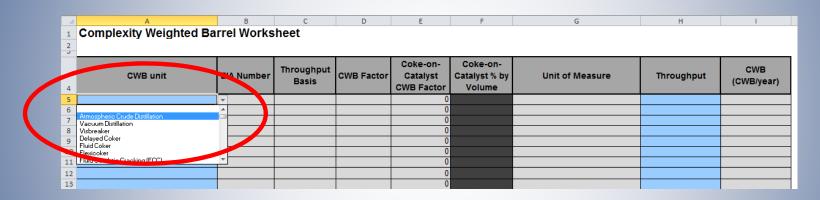


CWB Worksheet Tab

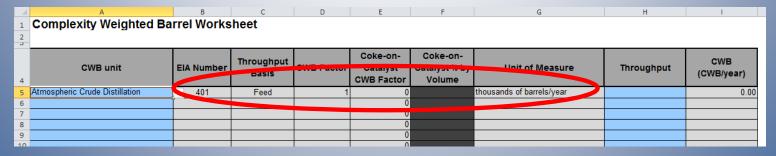
- Enter throughputs and Total CWB is automatically calculated
- Most CWB Units need only two input steps:
 - 1. Choose the CWB Unit from drop-down menu in column A
 - Enter throughput for that CWB Unit in column H



 Step #1: Choose a CWB unit from drop-down menu in column A

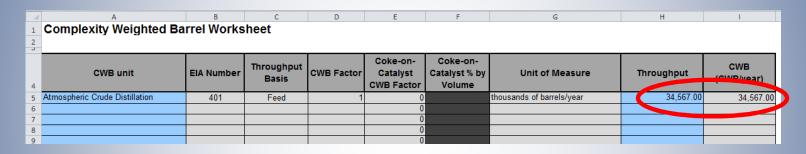


Throughput basis, CWB factor, and unit of measure completed automatically



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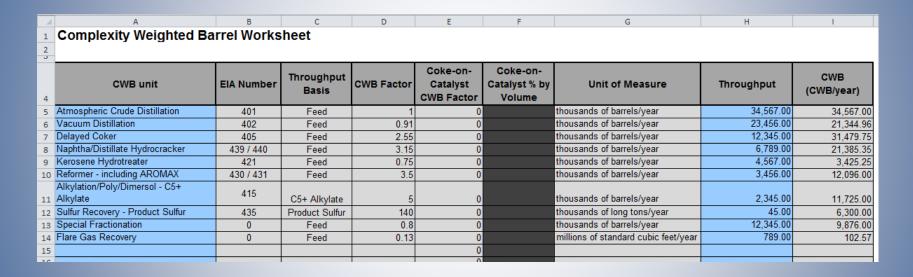
- Step #2: Enter throughput
 - CWB for that CWB unit is calculated in column I



- Throughputs must be:
 - Fresh feed/product only, excluding recycled material (don't double-count material that passes through the unit more than once)
 - Entered at most to two digits after decimal point
 - Entered in the units stated in column G

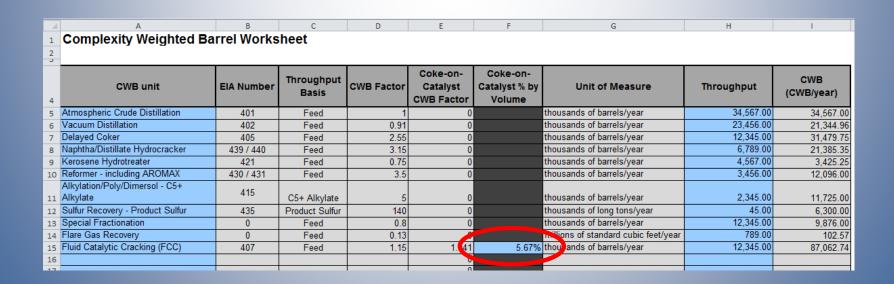
- If facility has more than one unit of the same type:
 - Sum the throughputs for these units of the same type
 - Report this sum in a single row of the worksheet
 - Do not select any CWB Unit from the drop-down menu more than once
- For example, a refinery with two atmospheric distillation columns would report the sum of their throughputs in one row of the worksheet

Repeat for each CWB unit at the facility

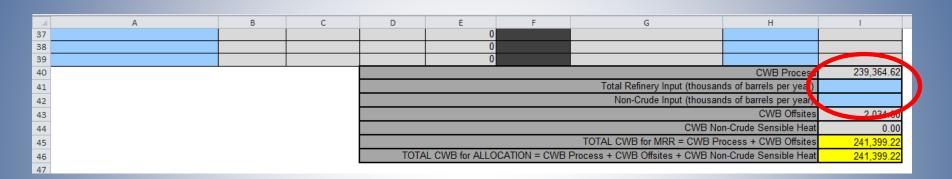


 AVOID DOUBLE COUNTING: No single refinery activity may be reported under more than one CWB Unit

- FCC units need a third step of entering cokeon-catalyst volume percent
 - Enter as a percent (5.67%), not a decimal fraction (0.0567)
 - Enter two digits after the decimal point



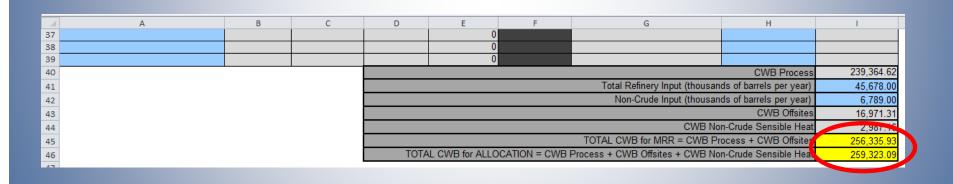
Process CWB is calculated in cell I40



- Enter Total Refinery Input in cell I41 and Non-Crude Input in cell I42 (defined in §95102(c))
 - Total: crude, condensate, additives, antiknock compounds, cetane improvers, crude diluents, etc.
 - Noncrude: excludes hydrogen, non-processed blendstock and returns from a lube refinery

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- FINAL ANSWERS: Total CWB in yellow cells
 - Total CWB for MRR verification is cell I45
 - Total CWB for Cap-and-Trade allocation is cell I46



Total CWB for MRR is subject to material misstatement

CWB Worksheet Tab: Notes

- H₂ production and coke calcining are NOT included in the Total CWB calculation because they are allocated under separate benchmarks
- For outputs (e.g., sulfuric acid, asphalt), report only the amount produced at the facility

CWB Calculation: Potential Errors

- Processes should be classified by their current function, not historic name
 - Definitions of CWB units are in §95102(c)
- Units: 1000 barrels/year, not barrels/day
- Units for fuel gas recovery: horsepower rating
- Standard conditions for gases: dry, 1 atm, 60 °F
- Noncrude Input only includes material put through a process unit, not just brought onsite

CWB Data Tab

- No user input needed on this tab
- This is a database of CWB factors, units of measure, and throughput bases for CWB units drawn from Table 1 in §95113(I)(3)
- This information is used by the CWB Worksheet tab to calculate CWB

Submitting the Spreadsheet

- Ensure data are accurate and complete
- Save spreadsheet
 - Filename: Refinery_name_CWB_(2013).xls
- Must include completed CWB spreadsheet as part of the 2013 data submittal
 - Due April 10, 2014
- Submit here:

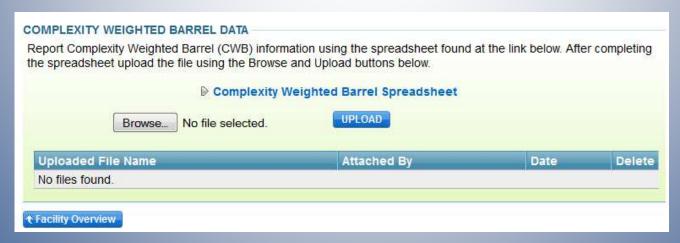
https://ssl.arb.ca.gov/Cal-eGGRT/login.do

Submitting the Spreadsheet

Login, then OPEN Section 95113 (Subpart Y):



Click BROWSE, find file, click UPLOAD:



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Schedule

- April 10: Regulatory deadline for reporting emissions and product data
- September 2: Verification statements due

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Questions?

Web Resources

- Email questions: ghgreport@arb.ca.gov
- Reporting Guidance: CWB
 http://www.arb.ca.gov/cc/reporting/ghg-rep/guidance/cwb.pdf
- Reporting Guidance: Applicability, Metering
 http://www.arb.ca.gov/cc/reporting/ghg-rep/guidance/guidance.htm
- Cal e-GGRT Tool Training: Registration, Subparts http://www.arb.ca.gov/cc/reporting/ghg-rep/tool/ghg-tool.htm
- Cal e-GGRT Main Help Page
 http://www.ccdsupport.com/confluence/display/calhelp/Home

ARB Staff

GHG Mandatory Reporting (General)	(Manager)	Brieanne Aguila	(916) 324-0919
Reporting Tool Registration & General Questions		Karen Lutter	(916) 322-8620
Petroleum Refineries, Hydrogen Plants, Oil & Gas Production		Byard Mosher	(916) 322-1185
Greenhouse Gas Report Verification	(Manager)	Renee Lawver	(916) 322-7062
Climate Change Program Evaluation Branch	(Chief)	Rajinder Sahota	(916) 323-8503

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